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10/522,851	07/29/2005	Daniel H. Lange	926267-100001	6626

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EXAMINER
MOORTHY, ARAVIND K

ART UNIT	PAPER NUMBER
2131	

DATE MAILED: 10/02/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

PTO-90C (Rev. 10/03)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 July 2006*.

2a)☒ This action is **FINAL.**   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 January 2005* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☒ None of:

      1.☒ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☒ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____ .

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application

6)☐ Other: _____ .

DETAILED ACTION

1. This is in response to the arguments filed on 19 July 2006.

2. Claims 1-28 are pending in the application.

3. Claims 1-28 have been rejected.

Response to Arguments

4. Applicant's arguments filed 19 July 2006 have been fully considered but they are not persuasive.

On page 2, the applicant argues that Bennett merely suggests to "measure at least one trait of an internal physiological process" such as a heartbeat waveform. The applicant argues that there is no suggestion of "producing and storing a first biometric signature that identifies a specific individual by forming the difference between a representation of the heartbeat pattern of the specific individual and a stored representation of common features of heartbeat patterns of a plurality of individuals". The applicant argues that Bennett does not describe or suggest the second and third paragraphs of claim 1.

The examiner respectfully disagrees. Bennett teaches maintaining biometric user profiles that are used in authentication. Capturing a user's heartbeat and saving it as a signature create a profile. The information stored as a biometric profile is then designated as an authenticating profile. In other words, the stored profile will act as a password, preventing access to the device unless a substantially identical biometric profile is measured by the device. The device is designed so that before the device is fully activated, the device must measure and compare a user's biometric profile with the authorized biometric profile. If the biometric profile measured is substantially identical to the stored biometric profile, then the user may be granted access to

the device. The program can track variances over time and modify the stored authenticating waveform to more closely match the slightly changed waveform of the authorized user, if necessary. Self-calibration allows the authenticating signal to be modified within a statistical limit, to more closely match a gradually changing waveform of an authorized user. Thus, as small and insubstantial changes in the authorized user's waveform increase over time, the authenticating signal can also be changed. Self-calibration may be applied by the use of a calibration program and is preferably an automatic and continuous calibration that is performed upon each use of the authentication device. When a received signal is compared to an authenticating signal, if the signals or waveforms are statistically identical, the present invention will transmit a validating signal, which may activate a switch or otherwise enable a device. Where the signals or waveforms are not statistically identical, a signal indicating the waveform is "invalid" is generated. When the signal is not valid, the biometrically activated switch will remain off or the device will remain disabled.

Specification

5.   The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(4). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

The abstract is not on a separate sheet of paper.

Information Disclosure Statement

6. The examiner has considered the information disclosure statement.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a̲ patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer <u>cannot</u> overcome a double patenting rejection based upon 35 U.S.C. 101.

7. Claims 1-28 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-28 of copending Application No. 10/984,200. This is a <u>provisional</u> double patenting rejection since the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

8. **Claims 1-28 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

This is an invention for a portable biometric authentication system for producing and storing a first biometric signature that identifies a specific individual by forming the difference between a representation of the heartbeat pattern of the specific individual and a stored representation of common features of heartbeat patterns of a plurality of individuals. As

understood by the examiner, the invention is directed to the use of a heartbeat. Applicant fails to mention a criterion on how to differentiate between different populations of people's heartbeat, pages 16 and 17. The examiner asserts that one of ordinary skill would have to go through the entire population to find the theory behind the invention. This would cause undue experimentation. The examiner asserts that applicant's failure to provide details on how the particular biometric features of the use of authentication by heartbeat are unique to a particular group of people or to an individual. Without such details, one skilled in the art would be required to engage in undo experimentation in order to practice or use the invention. A person of ordinary skill in the art would have to undergo clinical trials to measure and come up with a criterion to differentiate between different individuals.

The examiner asserts that the method of authentication with heartbeat is not the best method for authentication. There are many factors that affect a person's heartbeat such as stress/emotion level, amount of physical activity, time of day (heartbeat slowest in the morning), and health of individual. Also multiple individuals with the same pacemaker will all have the same heart rate. These factors make it difficult to differentiate a heartbeat between multiple individuals for authentication.

Any claims that are not mention specifically are rejected by the virtue of dependency.

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

9.   Claims 1 and 15 are rejected under 35 U.S.C. 101. The scope of claims 1 and 15 could include any type of transmission medium such as any type of signal. Data signals without more are non-statutory, as they do not fall within any of the statutory classes listed in 35 U.S.C 101. Data structures not claimed as embodied in computer-readable media are descriptive material per se and are not statutory because they are not capable of causing functional change in the computer. See, e.g., Warmerdam, 33 F.3d at 1361, 31 USPQ2d at 1760 (claim to a data structure per se held nonstatutory). Such claimed data structures do not define any structural and functional interrelationships between the data structure and other claimed aspects of the invention which permit the data structure's functionality to be realized. In contrast, a claimed computer-readable medium encoded with a data structure defines structural and functional interrelationships between the data structure and the computer software and hardware components which permit the data structure's functionality to be realized, and is thus statutory.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the

basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 1-25 and 27 are rejected under 35 U.S.C. 102(e) as being anticipated by Bennett US 2003/0128867 A1.

As to claim 1, Bennett discloses a method for identifying an individual, comprising:

producing and storing a first biometric signature that identifies a specific individual by forming the difference between a representation of the heartbeat pattern of the specific individual and a stored representation of common features of heartbeat patterns of a plurality of individuals [0053-0054];

after the producing step, obtaining a representation of the heartbeat pattern of a selected individual and producing a second biometric signature by forming the difference between the heartbeat pattern of the selected individual and the stored representation of the common features of the heartbeat patterns of the plurality of individuals [0086-0088]; and

comparing the second biometric signature with the first biometric signature to determine whether the selected individual is the specific individual [0086-0088].

As to claims 2 and 16, Bennett discloses the method, wherein:

the step of producing and storing comprises producing and storing a plurality of first biometric signatures, each identifying a respective individual, by forming the difference between a representation of the heartbeat pattern of each respective individual and the stored representation of the common features of the heartbeat patterns [0068-0069]; and

the step of comparing is carried out with respect to each of the first biometric signatures [0086-0088].

As to claims 3 and 17, Bennett discloses the preliminary step of obtaining representations of the heartbeat patterns of a plurality of individuals [0077-0078]. Bennett discloses deriving and storing the representation of the common features of the heartbeat patterns of a plurality of individuals from at least a selected number of the representations [0077-0078].

As to claims 4 and 18, Bennett discloses that the step of deriving and storing the representation of the common features of the heartbeat patterns of a plurality of individuals comprises deriving and storing a plurality of representations of the common features of the heartbeat patterns each from a respectively different group of the plurality of individuals [0098].

As to claim 5, Bennett discloses that the step of deriving and storing the representation of the common features of the heartbeat patterns of a plurality of individuals comprises producing an average of the heartbeat patterns of the plurality of individuals [0103].

As to claim 6, Bennett discloses that the step of deriving and storing the representation of the common features of the heartbeat patterns of a plurality of individuals comprises performing one of principal component analysis or wavelet decomposition [0094-0095].

As to claims 7 and 19, Bennett discloses that the step of comparing comprises correlating the second biometric signature with each of the first biometric signatures and identifying that one of the first biometric signatures that correlates most closely to the second biometric signature [0086-0088].

As to claims 8 and 20, Bennett discloses that the step of correlating comprises obtaining a correlation coefficient associated with each first biometric signature [0130-0131]. Bennett discloses that the step of comparing further comprises comparing the correlation coefficient associated with the identified first biometric signature with a correlation coefficient threshold [0130-0131].

As to claims 9 and 21, Bennett discloses that the step of comparing comprises:

> correlating the second biometric signature with the first biometric signature to obtain a correlation coefficient [0130-0131]; and

> comparing the correlation coefficient associated with the identified first biometric signature with a correlation coefficient threshold [0130-0131].

As to claim 10, Bennett discloses that the step producing and storing a first biometric signature comprises storing the signature in a local database [0125].

As to claim 11, Bennett discloses that the step producing and storing a first biometric signature comprises storing the signature in a remote database [0125].

As to claim 12, Bennett discloses that the step of obtaining a representation of the heartbeat pattern of a selected individual comprises compensating for deviations in the pulse rate of the selected individual from a selected pulse rate [0075].

As to claim 13, Bennett discloses that the step of obtaining a representation of the heartbeat pattern of a selected individual comprises obtaining several representations of heartbeat patterns [0075].

As to claim 14, Bennett discloses that the step of producing and storing a first biometric signature of a specific individual comprises obtaining a plurality of representations of the heartbeat pattern of the specific individual over a period of time and producing successive first biometric signatures each from a respective one of the plurality of representations of the heartbeat pattern of the specific individual [0076-0077].

As to claim 15, Bennett discloses an apparatus for identifying an individual, comprising:

means for producing and storing a first biometric signature that identifies a specific individual by forming the difference between a representation of the heartbeat pattern of the specific individual and a stored representation of common features of the heartbeat patterns of a plurality of individuals [0053-0054];

means for obtaining, after the first biometric signature has been produced and stored, a representation of the heartbeat pattern of a selected individual and producing a second biometric signature by forming the difference between the heartbeat pattern of the selected individual and the stored representation of the common features average of the heartbeat patterns of the plurality of individuals [0086-0088]; and

means for comparing the second biometric signature with the first biometric signature to determine whether the selected individual is the specific individual [0086-0088].

As to claim 22, Bennett discloses that the apparatus is: a cellular embedded identification apparatus [0089].

As to claim 23, Bennett discloses that the apparatus is a Bio-logon identification apparatus for remote-logon to secure resources [0089].

As to claim 24, Bennett discloses that the apparatus is continuously in operation [0086].

As to claim 25, Bennett discloses that the means for obtaining are constructed to be contacted by either the hands or feet of the selected individual [0092].

As to claim 27, Bennett discloses that the apparatus is constructed to operate with encryption keys or digital signatures [0005].

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in
> section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are
> such that the subject matter as a whole would have been obvious at the time the invention was made to a person
> having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the
> manner in which the invention was made.

11.   Claim 26 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett US

2003/0128867 A1 as applied to claim 15 above, and further in view of Kohut U.S. Patent

No. 6,246,769 B1.

As to claim 26, Bennett does not teach that the apparatus is provided in a smart card that

is enabled for a limited period of time after successful recognition and disabled thereafter until

the next successful recognition is performed.

Kohut teaches a biometric apparatus that is incorporated in a smart card that is enabled

for a limited period of time after successful recognition and disabled thereafter until the next

successful recognition is performed.

Therefore, it would have been obvious to a person having ordinary skill in the art at the

time the invention was made to have modified Bennett so that that apparatus would have been

incorporated into a smart card that was enabled for a limited period of time after successful

recognition and disabled thereafter until the next successful recognition is performed.

It would have been obvious to a person having ordinary skill in the art at the time the

invention was made to have modified Bennett by the teaching of Kohut because by incorporating

the apparatus on a smart card provides portability and it also allow an authorized user to readily

decode PINs and gain access to any protected resource which has not been accessed by the user

for an extended period of time [column 7, lines 41-67].

12.   Claim 28 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bennett US

2003/0128867 A1 as applied to claim 15 above, and further in view of Steuer U.S. Patent

No. 4,239,048.

As to claim 28, Bennett does not teach that the apparatus is incorporated into a watch

worn on the wrist. Bennett does not teach that the signal is measured between the wrist on which

the watch is worn and the other hand of the wearer.

Steuer teaches an apparatus that is incorporated into a wristwatch [column 3, lines 40-

45]. Steuer teaches that the watch measures the signal between the wrist on which the watch is

worn and the other hand of the wearer [column 3, lines 40-45].

Therefore, it would have been obvious to a person having ordinary skill in the art at the

time the invention was made to have modified Bennett so that the apparatus would have been

incorporated into a wristwatch. The watch would have measured the signal between the wrist on

which the watch is worn and the other hand of the wearer.

It would have been obvious to a person having ordinary skill in the art at the time the

invention was made to have modified Bennett by the teaching of Steuer because it provides a

method that produces a continuous update and display, and which is not plagued by the problems

of inconsistent readout, and the introduction of error from any source, such as, muscle tremor,

poor sensor contact, and inappropriate use, to name a few [column 1 line 66 to column 2 line 4].

Conclusion

13.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Aravind K. Moorthy whose telephone number is 571-272-3793. The examiner can normally be reached on Monday-Friday, 8:00-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ayaz R. Sheikh can be reached on 571-272-3795. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent

Application Information Retrieval (PAIR) system. Status information for published applications

may be obtained from either Private PAIR or Public PAIR. Status information for unpublished

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like assistance from a USPTO Customer Service Representative or access to the automated

information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Aravind K Moorthy
September 22, 2006

CHRISTOPHER REVAK
PRIMARY EXAMINER